

NYISO 2023 Fault Current Assessment

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OPERATING COMMITTEE

May 18, 2023

Background

■ Purpose

- Perform symmetrical fault duty analysis on selected New York stations to determine whether the circuit breakers present in the New York Control Area system would be subject to fault levels in excess of their rated interrupting capability
- Required annually by the New York State Reliability Council Rules (C.5)

Major System Changes¹

- **AC Transmission Segment A topology**
 - Princetown 345 kV substation topology was placed in-service
- **AC Transmission Segment B topology**
 - Knickerbocker 345 kV substation was placed in-service
 - Van Wagner 345 kV substation was placed in-service
 - Sugarloaf to Rock Tavern 115 kV substation topology was placed in-service
- **Con Ed series reactor assumptions for Summer 2023 per Attachment II**
- **L34P was placed out of service**
- **B3402 PAR1 out-of-service**
- **C3402 PAR2 out-of-service**
- **Warren-Falconer out-of-service**
- **Retirement of Gowanus 1-1 to 1-8**
- **Retirement of Gowanus 4-1 to 4-8**
- **Retirement of Astoria GT 2-1 to 2-4**
- **Retirement of Astoria GT 3-1 to 3-4**
- **Retirement of Astoria GT 4-1 to 4-4**

¹The starting point for this representation was the NYISO 2023 Statewide Short Circuit representation, with updates to reflect the planned system changes listed in the NYISO 2023 Load and Capacity Data Report (“Gold Book”).

2023 Results

- 152 Stations reviewed

General Changes in fault current levels

- **Fault Currents significantly decreased at the Academy 345 kV, Astoria Annex 345 kV, Buchanan North 345 kV, Buchanan South 345 kV, Dunwoodie 345 kV, E13th Street 345 kV, Farragut 345 kV, Ladentown 345 kV, Millwood 345 kV, Mott Haven 345 kV, Pleasantville 345 kV, Rainey 345 kV, Ramapo 345 kV, Shore Road 345 kV, Sprainbrook 345 kV, West 49th Street 345 kV, Dunwoodie North 345 kV, Dunwoodie South 138 kV, East 13th Street 138 kV, East 179th Street 138 kV, Eastview 138 kV, Sherman Creek 138 kV, Shore Road 138 kV, Sprainbrook TR N7 138 kV, Sprainbrook TR S6 138 kV, Tremont 11 138 kV, Tremont 12 138 kV substations due to the change in Coned Series reactor assumptions for Summer 2023.**

2023 Results (Cont.)

- **Fault Currents significantly decreased at the Astoria East ERG 138 kV, Astoria East WRG 138 kV and Corona North 138 kV substations due to the retirements of Astoria GT 2, 3,4.**
- **Fault Currents significantly decreased at the Fox Hills 2 138 kV and Greenwood 138 kV substations due to the retirements of Gowanus GT 1 and 4.**
- **Fault Currents significantly decreased at the St. Lawrence 230 kV substation due to L34P being placed out of service.**
- **Fault Currents significantly increased at the East Garden City 345 kV, Freshkills 345 kV, Goethals 345kV, Gowanus 345kV East Garden City 138 kV, Newbridge 138 kV and Valley stream 138 kV substations due to the Change in Con Ed Series reactor assumptions for Summer 2023.**

2023 Results (Cont.)

- **Fault Currents significantly increased at the Dysinger 345 kV and Stolle Road 345 kV substation due to as-built modeling updates received by Next Era Energy Transmission NY**
- **Fault Currents significantly increased at the Gordon Road 345 kV, New Scotland 77K 345 kV, New Scotland 99K 345 kV, Rotterdam 66H 230 kV, Rotterdam 77H 230kV, Rotterdam 99H 230 kV substations due to the existing topology from the AC transmission Segment A project being placed in-service.**
- **Fault Currents significantly increased at the Newbridge 345 kV substation due to Newbridge Bank 1 being placed back in-service.**
- **Fault Currents significantly increased at the Kintigh 345 kV substation due to the Kintigh GSU 1 being placed in-service for the Somerset load interconnection project.**

2023 Results (Cont.)

- **Fault Currents significantly increased at the Hurley 345 kV substation due to the addition of the 301 Series Compensation project by Central Hudson.**
- **Fault Currents significantly increased at the Niagara 345 kV, Niagara East 230 kV and Niagara West 230 kV substations due to the Kintigh GSU 1 being placed in-service for the Somerset load interconnection project and the as-built modeling updates received by NextEra Energy Transmission NY.**

2023 Sensitivity Analysis Results

- NYISO performed sensitivity analysis for Astoria configurations per the existing Operating protocol for Astoria East and West Stations- Fault Current Mitigation approved at the Operating Committee on May 20th, 2022.
- Overduty breakers at Astoria East 138 kV would result when Astoria dual yard steam unit 3 and 5 are connected to the Astoria East bus.
- The NYISO recommends revision to the existing Operating Protocol for Astoria East and West Stations - Fault Current Mitigation approved at the Operating Committee on May 20th, 2022 to prevent overduty conditions at Astoria East for Astoria 3 and 5 connected to the Astoria East bus.

Findings and Recommendations

- The fault current assessment found no overdutied breakers.
- Based on the Sensitivity results performed according to the existing Operating Protocol, the NYISO recommends revision to the existing Astoria East and West Stations - Fault Current Mitigation approved at the Operating Committee on May 20th , 2022.

Next Steps

- Presented at System Operations Advisory Subcommittee (SOAS) on May 11th
- NYISO Operating Committee Review and Approval

Our Mission & Vision



Mission

Ensure power system reliability and competitive markets for New York in a clean energy future



Vision

Working together with stakeholders to build the cleanest, most reliable electric system in the nation

Questions?